

Montgomery County **RAPID TRANSIT**

MD 586

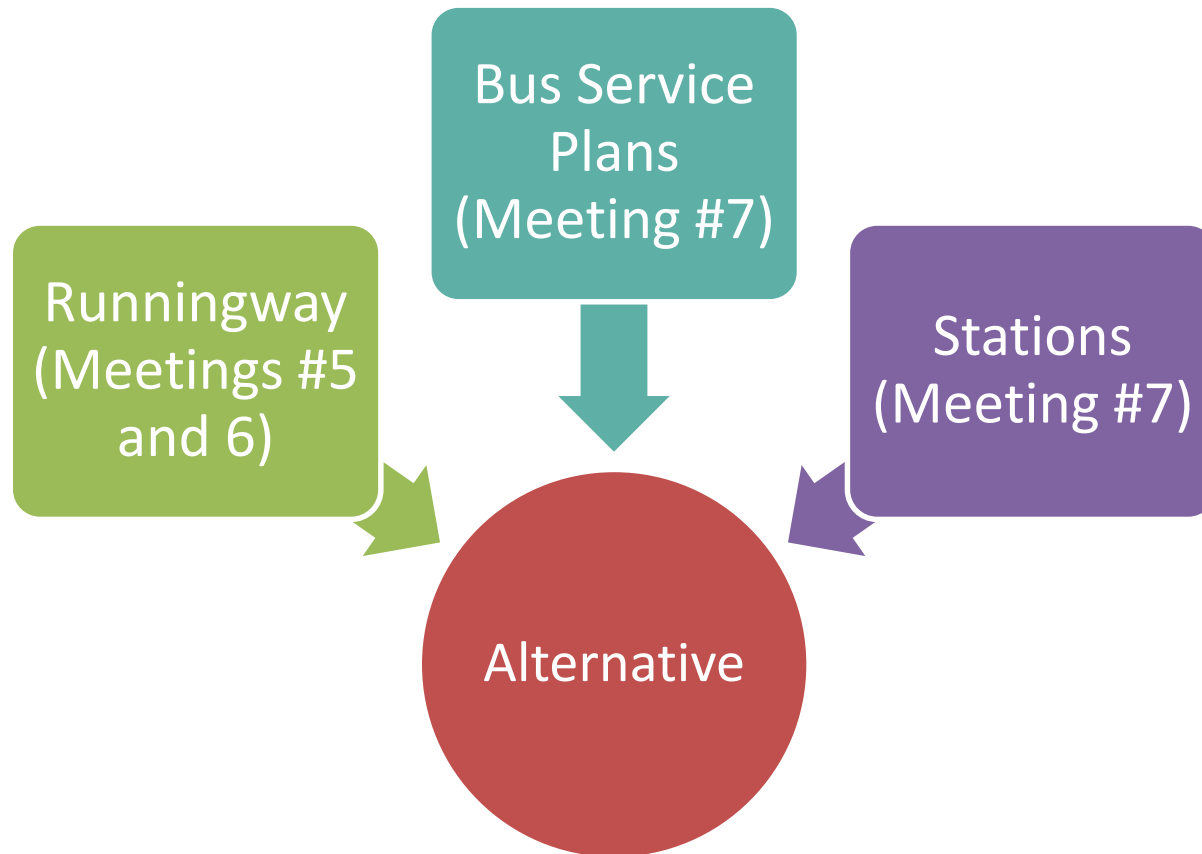
Veirs Mill Road
CAC Meeting #7
April 13, 2016



Purpose of Tonight's Meeting

- Recap Meeting #6
- Continue Review of Alternatives Retained for Detailed Study (3rd of 4 anticipated meetings):
 - Bus Service Plans
 - Station Location Discussion
 - Station Prototypes Discussion
- Questions/ Comments

Components of the Alternatives



Review of Alternatives Retained for Detailed Study

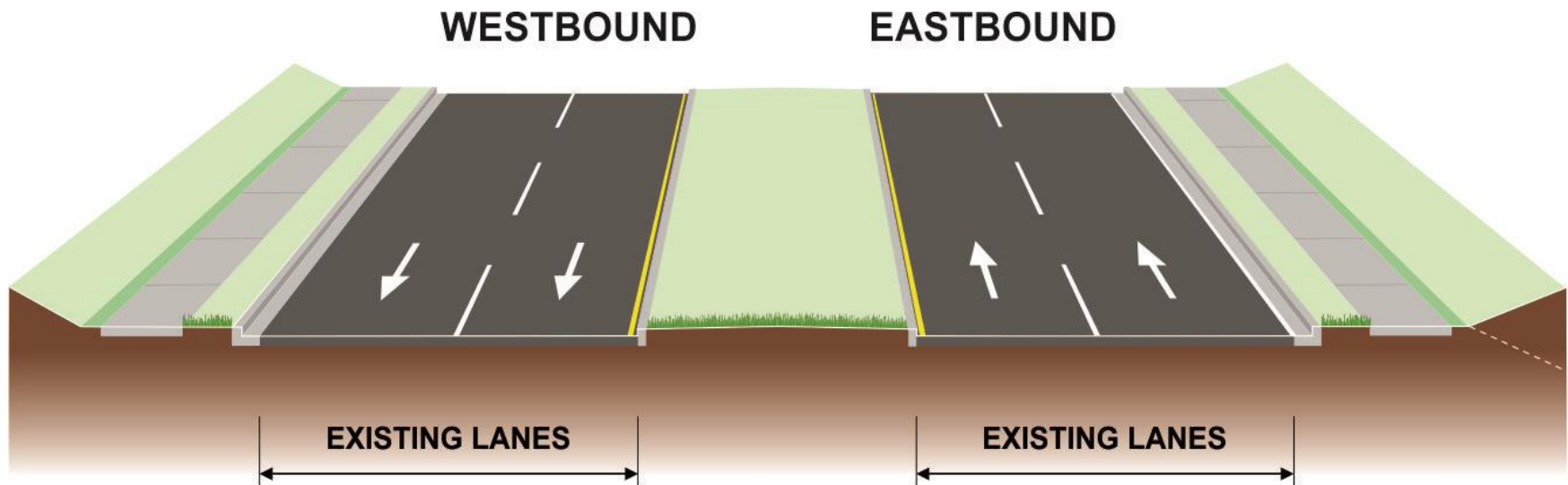
- Anticipate 4 meetings to review Alternatives
 - ~~Meeting #5: January 20th: Start Review of Alternatives~~
 - ~~Meeting #6: February 17th: Continue Review of Alternatives~~
 - Meeting #7: April 13th: Bus Service Plans and Station Concepts
 - Meeting #8: Continue Review of Alternatives: Traffic, Ridership, Cost Estimate, Comparison Table - TBD

Alternatives Retained for Detailed Study

- Alternative 1: No-Build
- Alternative 2: Enhanced bus service with queue jumps
- Alternative 3: New BRT service in dedicated curb lanes (where feasible)
- Alternative 5B: New BRT service in one bi-directional median lane or two dedicated median lanes

Alternative 1

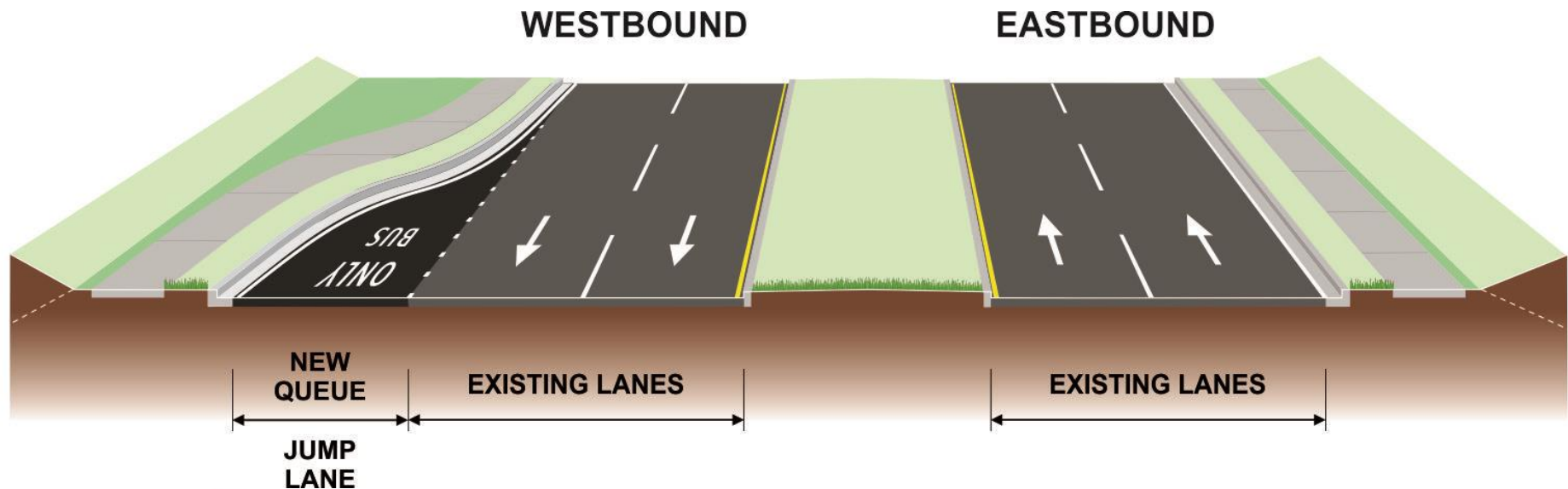
- No-Build
- Service: existing bus service
- Runningway: existing lanes in mixed traffic



*This typical section is for an existing four-lane section. The number of lanes in Alternative 1 would match the existing conditions.

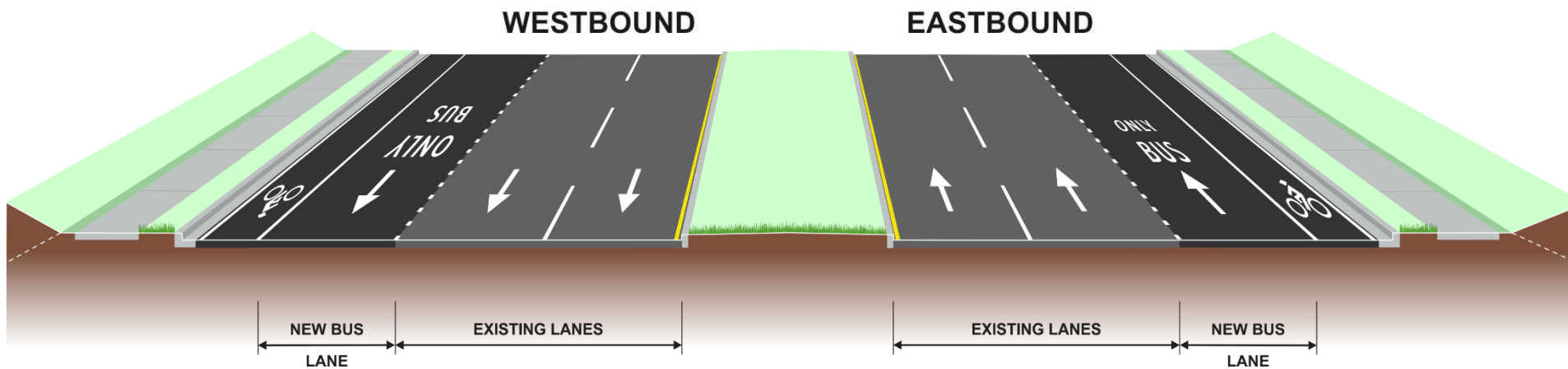
Alternative 2

- Transportation System Management (TSM)
- Service: Implement WMATA's proposed Q9 express bus service
- Runningway: Add queue jumps at select intersections; use existing lanes with mixed traffic otherwise
- Add Transit Signal Priority (TSP) at select locations and optimize signals
- Upgrade existing bus stops



Alternative 3

- Service: New BRT service
- Runningway: Curb-running dedicated lanes where feasible; existing lanes in mixed traffic otherwise
- Provides additional dedicated lanes where there would be minimal impacts on existing properties
- New BRT stations
- Provides bike lanes where feasible

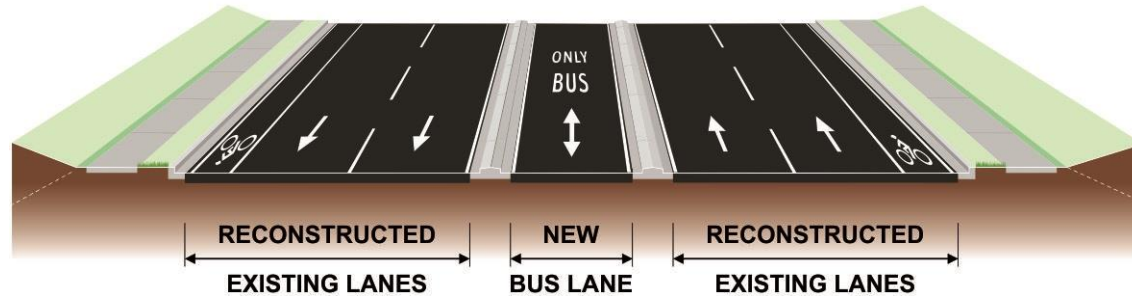


Alternative 5B – Bi-directional

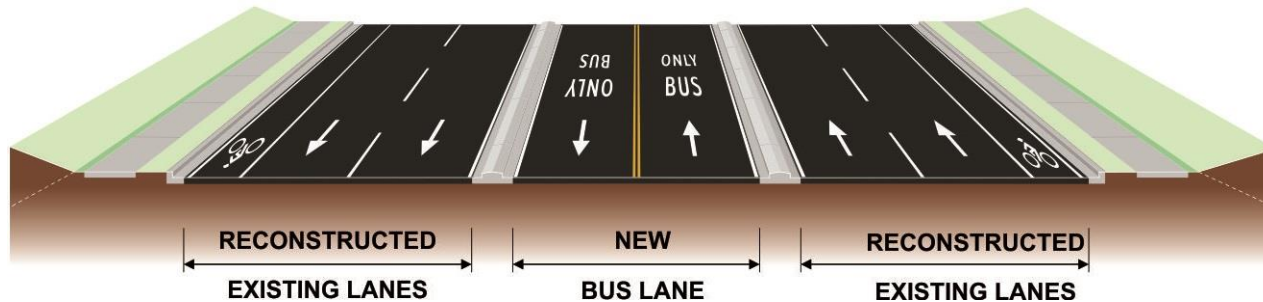
- Service: New BRT Service
- Runningway: New dedicated BRT lane(s) in median for two-way travel
 - Provide two-way travel in one or two new dedicated lanes
 - One-lane, median-running dedicated lane in both directions – buses pass each other at stations
 - Two dedicated lanes provided where feasible
 - Requires tight BRT operational schedule
- New BRT stations
- Provides bike lanes where feasible

Alternative 5B

A. East and West Ends of Study Limits



B. Center of Study Limits



- BRT buses would use the median lane(s)
- Local buses would use the curb lanes

What is a Bus Service Plan?

- A bus service plan includes:
 - Bus headways (the timing between consecutive buses)
 - Stations
 - Hours of operation
 - Routes

- The bus service plans for Alternatives 2, 3, and 5B are input into the traffic and transit computer model to predict future bus boardings

Service Characteristics – Alternative 2

- Overview
 - New Express Bus Limited Service
 - 12 stops
 - Existing local service – continue with 43 stops
- Wheaton Metro station to Rockville Metro station
 - 12 minute headways (peak)
 - 15 minute headways (off-peak)
 - Span of service: 6 AM to Midnight
- Rockville Metro Station to Montgomery College
 - 36 minute headways (peak)
 - 45 minute headways (off-peak)
 - Span of service: 8 AM to 10 PM

Service Characteristics – Alternatives 3 & 5B

- Overview
 - New BRT Service
 - 12 stations (curbside and/or median)
 - Existing local service – continue with 43 stops
- Wheaton Metro station to Rockville Metro station
 - 6 minute headways (peak)
 - 10 minute headways (off-peak)
 - Span of service: 6 AM to Midnight
- Rockville Metro Station to Montgomery College
 - 18 minute headways (peak)
 - 30 minute headways (off-peak)
 - Span of service: 8 AM to 10 PM

BRT Vehicles

- Level floors
- Multiple wide doors for easy boarding and departures
- Comfortable interiors that include space for wheelchairs and bicycle storage
- Typically articulated 60' vehicles with capacity of 80-100 passengers

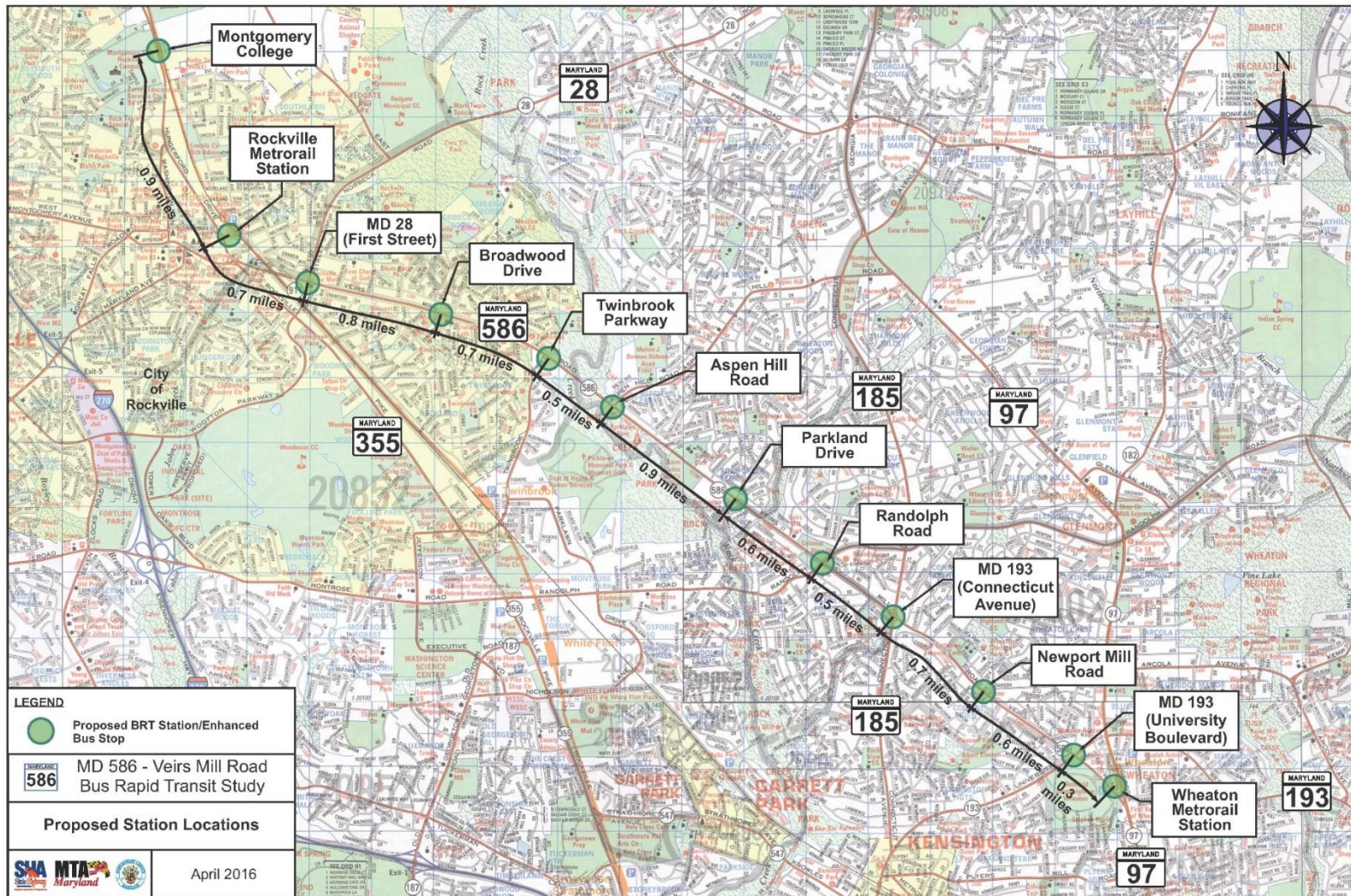


Typical BRT Vehicles



Station Locations

- How stations are located:
 1. Placement in Corridor (see map) → Which intersections should have stations?
 2. Placement at Intersections → Where should the station be placed at each intersection (near-side vs. far-side)?
- We want CAC input on where the stations should be placed in the corridor
- Station intersections in the current alternatives are based on previous studies and the *Countywide Transit Corridors Functional Master Plan*



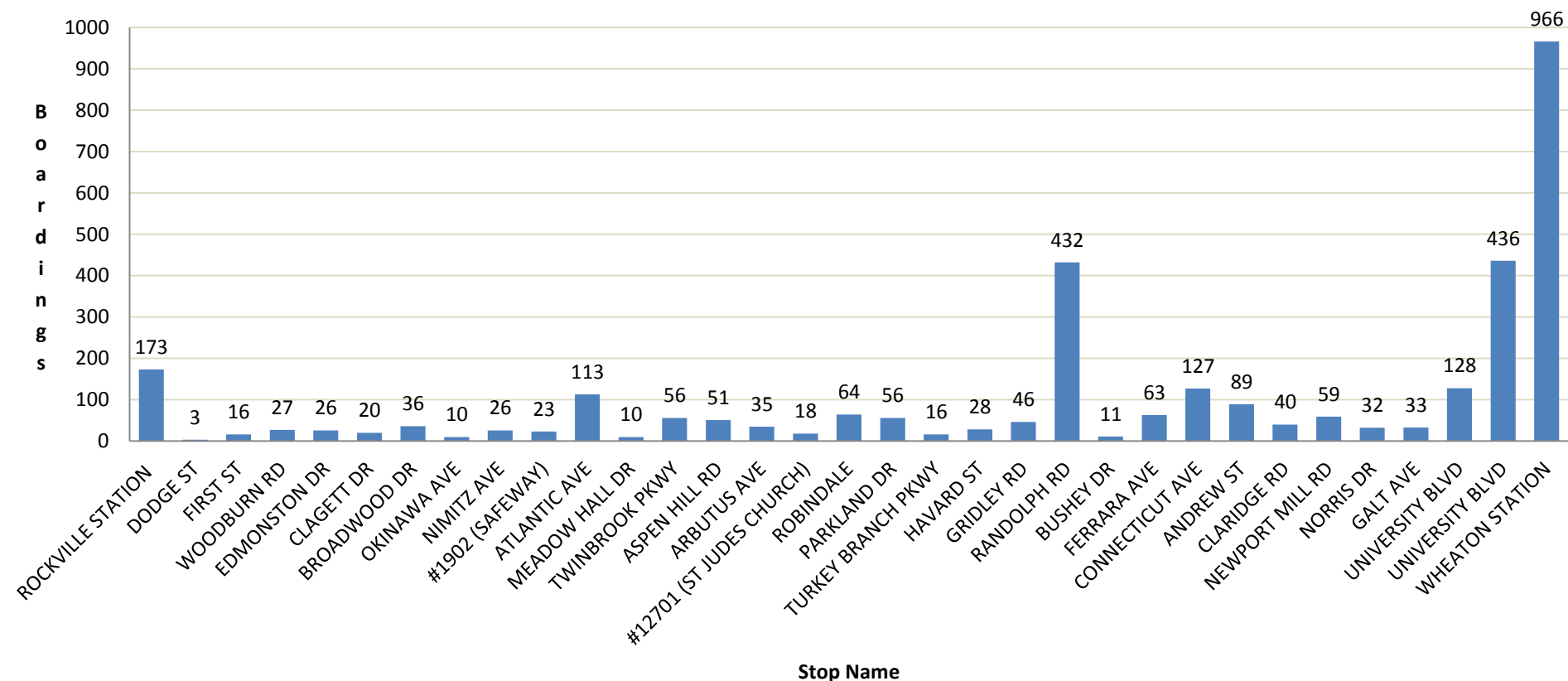
Placement in Corridor

- Should be near high activity centers
 - See chart with existing boardings by bus stop
- General spacing of 0.5-1.0 miles between stations

Existing Ridership

Weekday Boardings for Eastbound Stops on Veirs Mill Rd. Lines

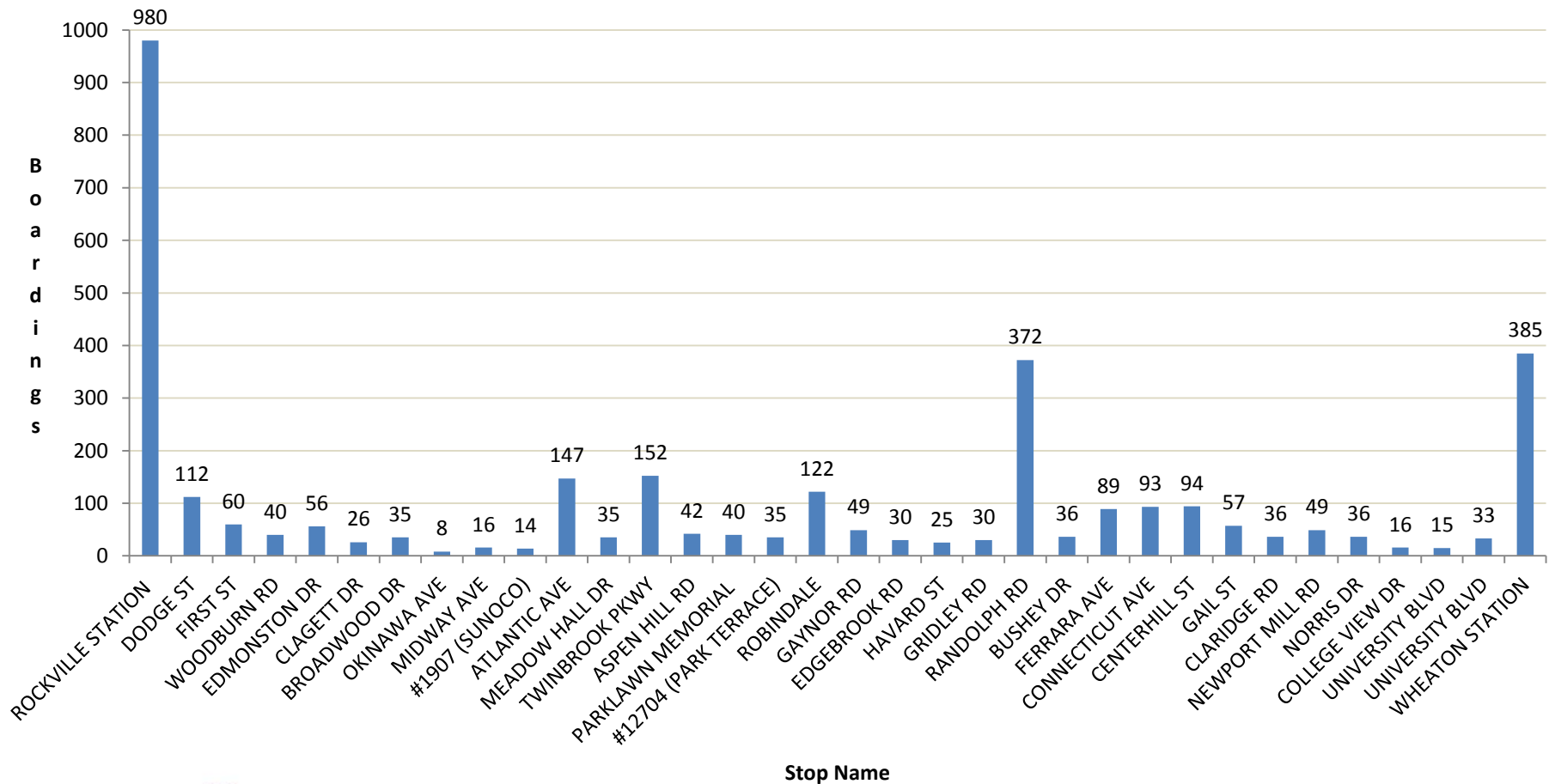
Source: WMATA APC data from Routes Q1, Q2, Q4, Q5, and Q6



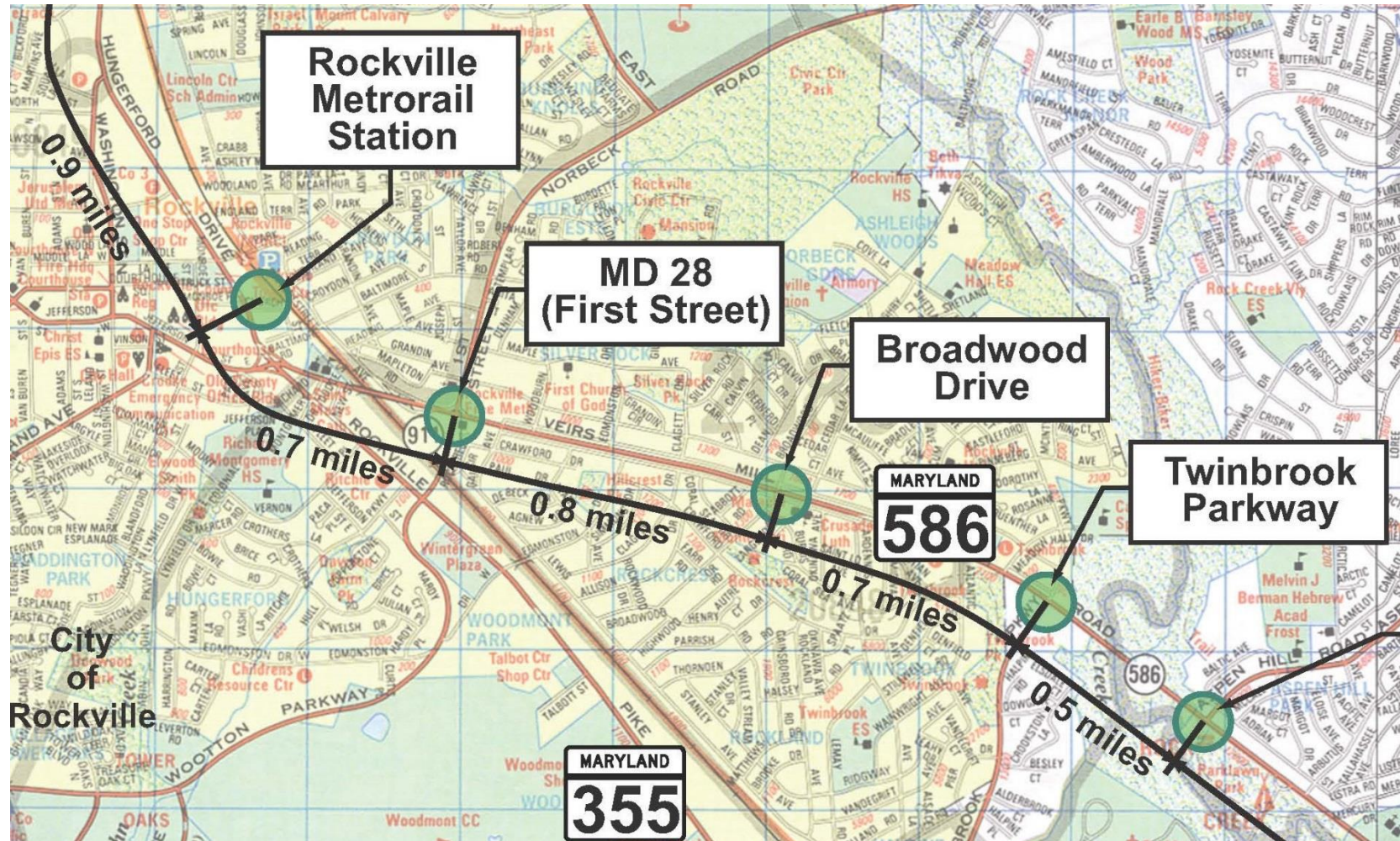
Existing Ridership

Weekday Boardings for Westbound Stops on Veirs Mill Rd. Lines

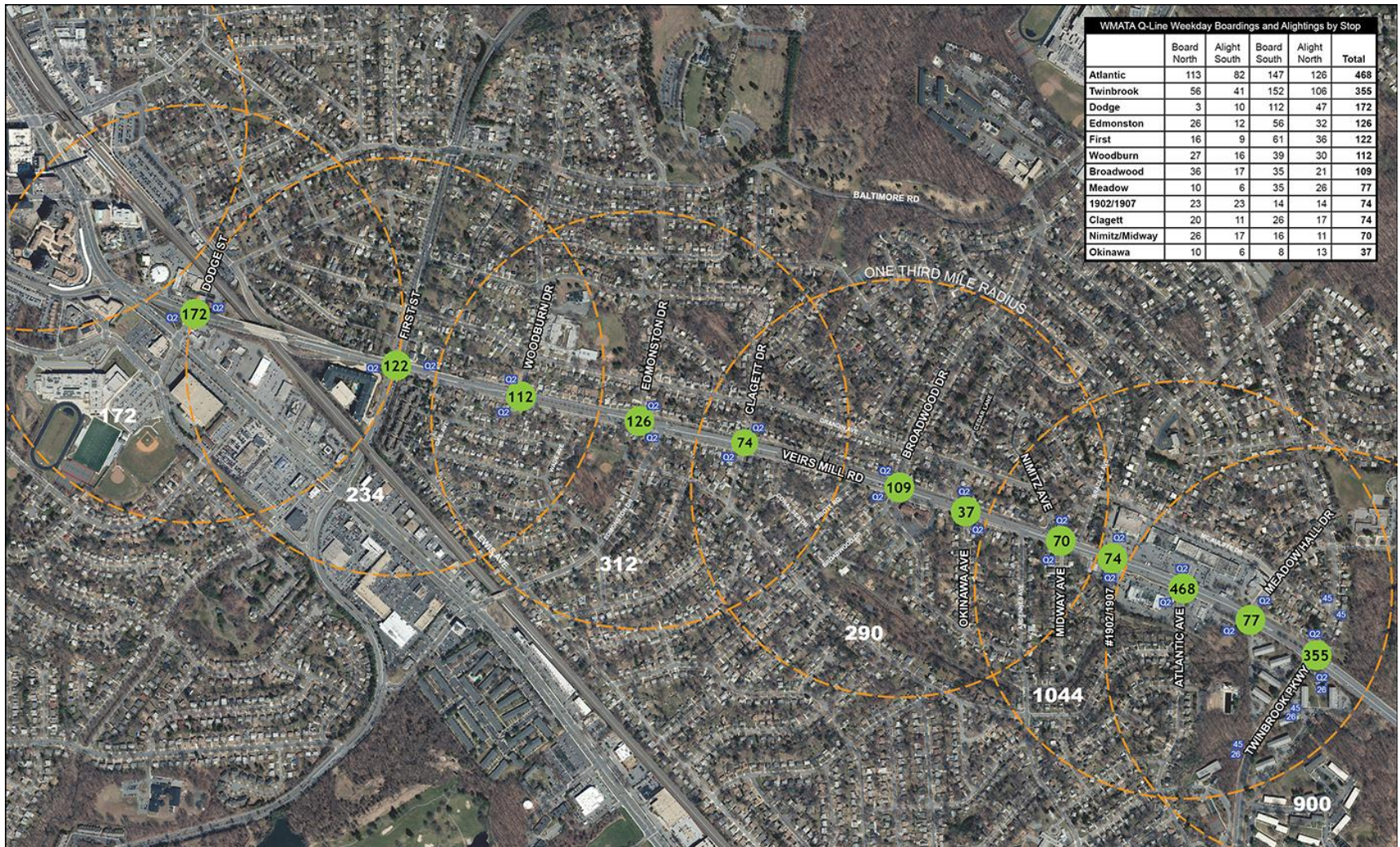
Source: WMATA APC data from Routes Q1, Q2, Q4, Q5, and Q6



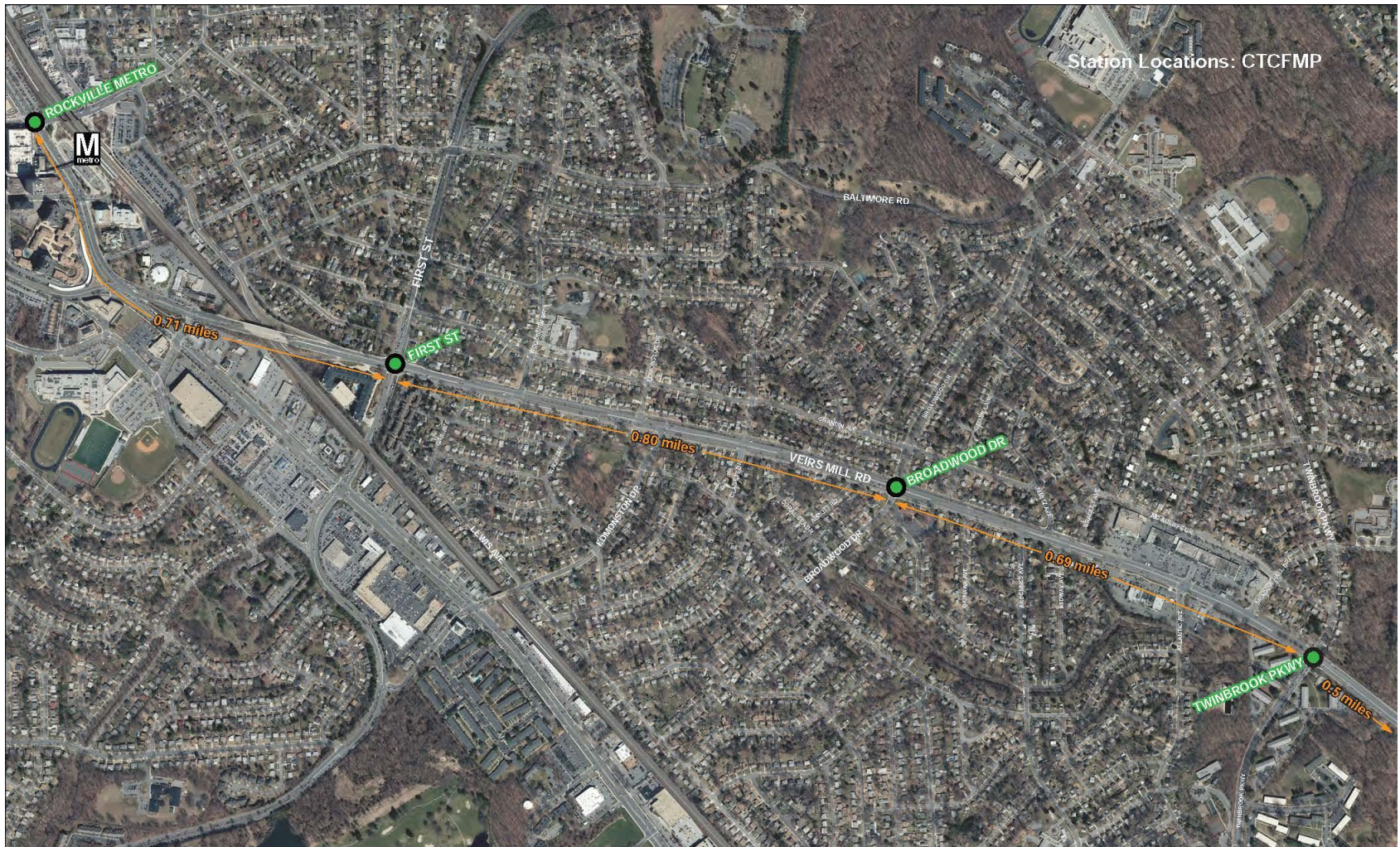
Rockville Area Stations



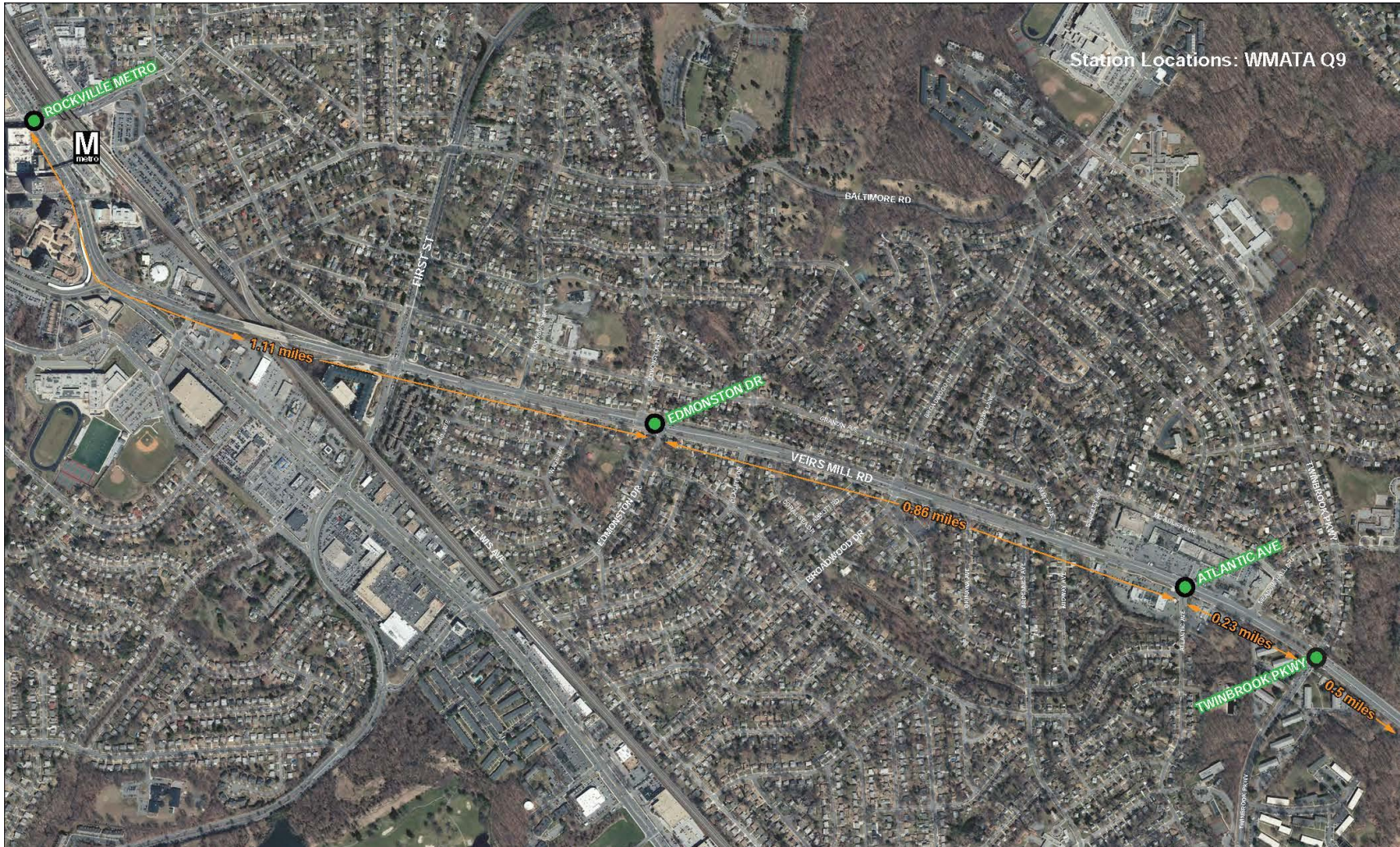
Rockville Stations



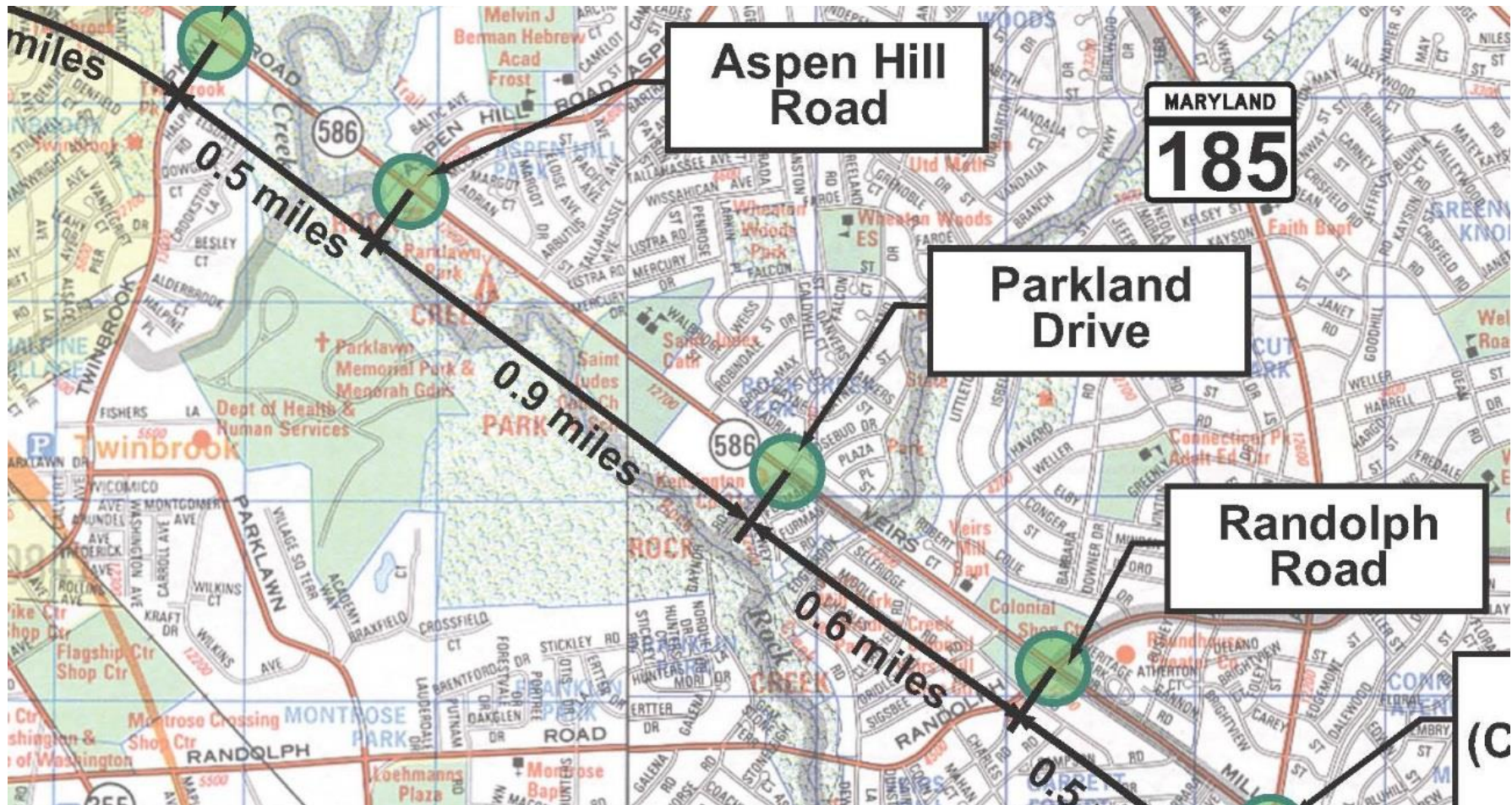
Rockville Stations – Current Locations



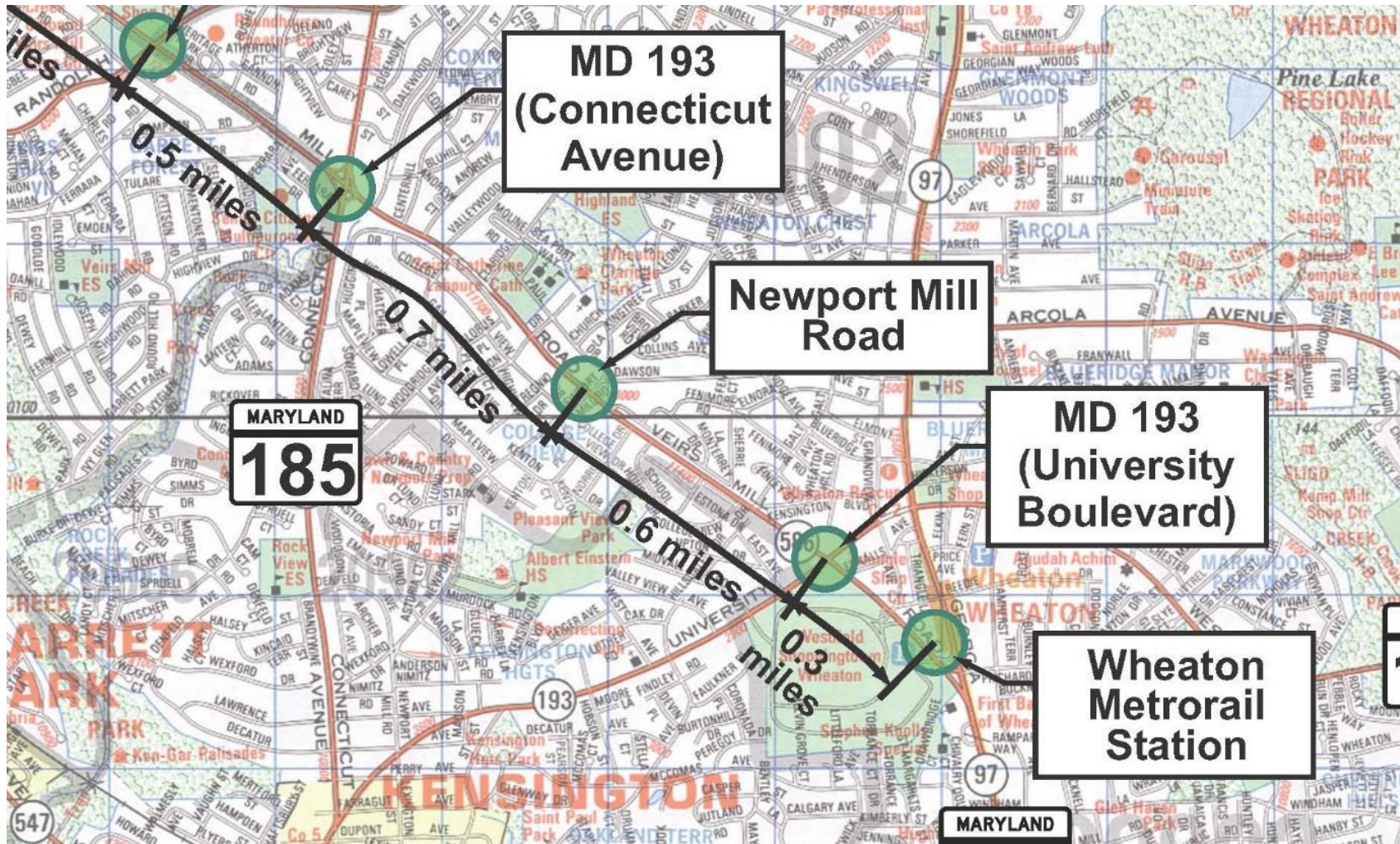
Rockville Stations – Possible Location Shift



Aspen Hill /Rock Creek Area Stations



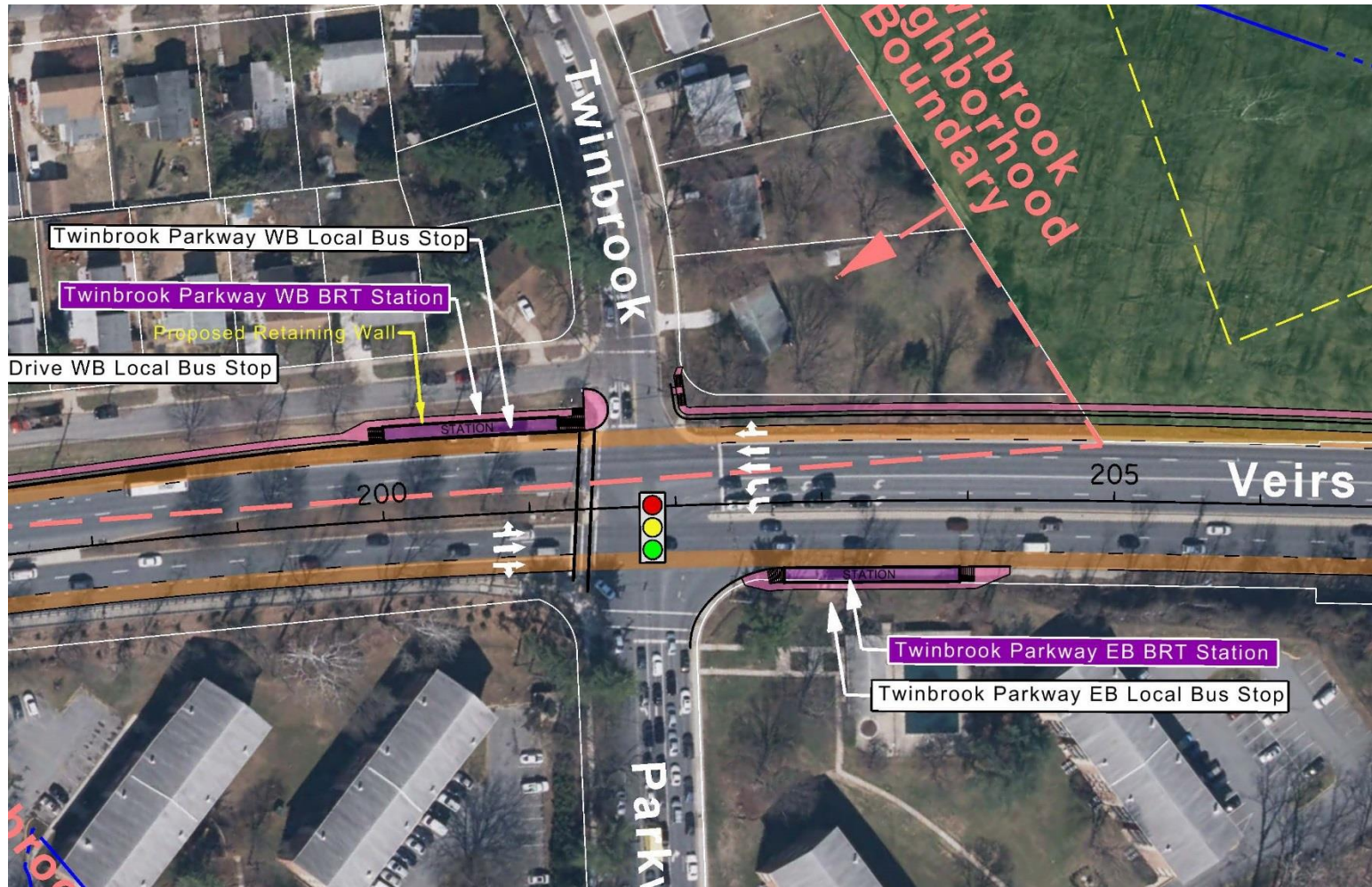
Wheaton Area Stations



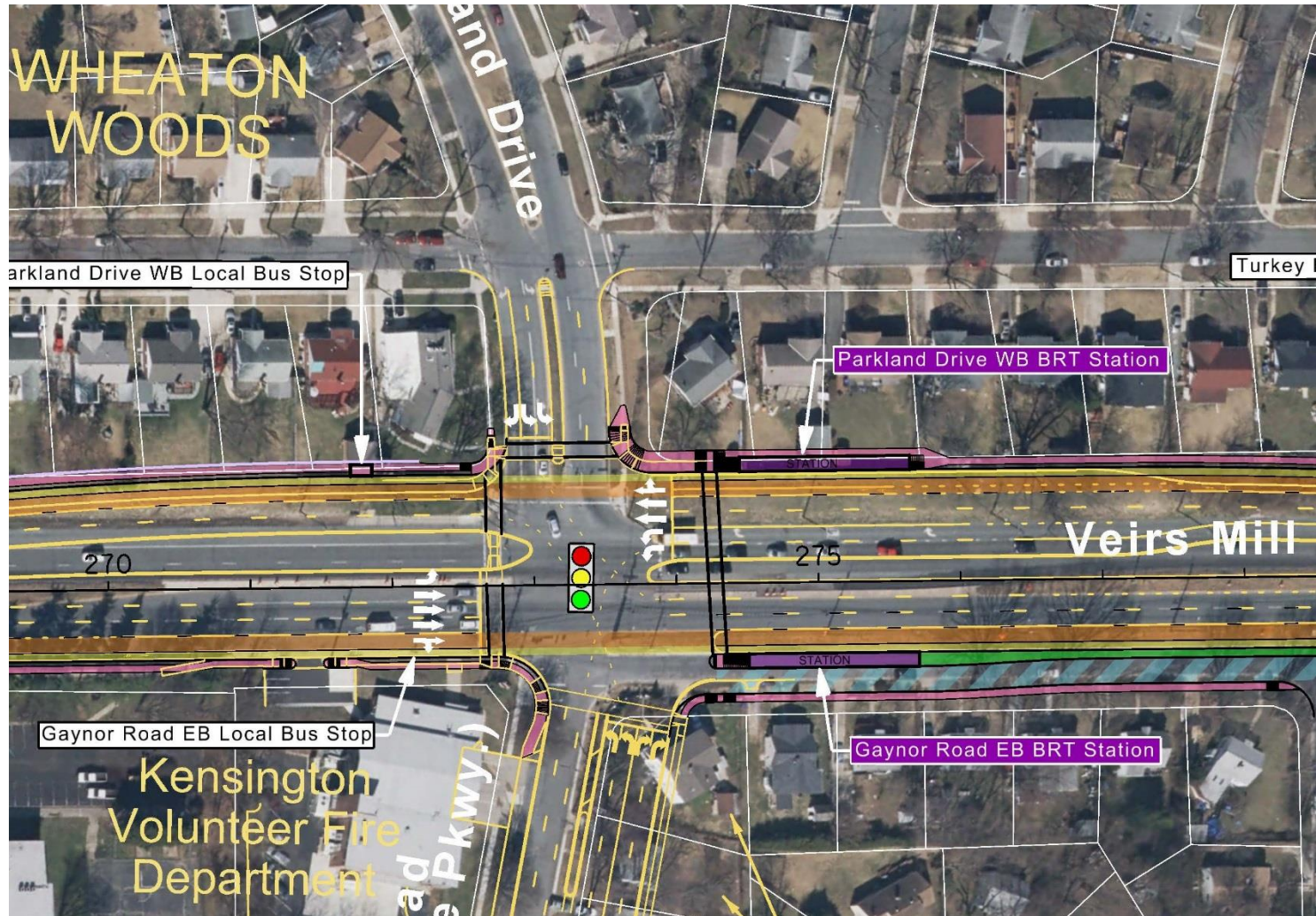
Placement at Intersections

- Near-side vs. Far-side
- Minimize property impacts
- Minimize number of street crossings for passengers

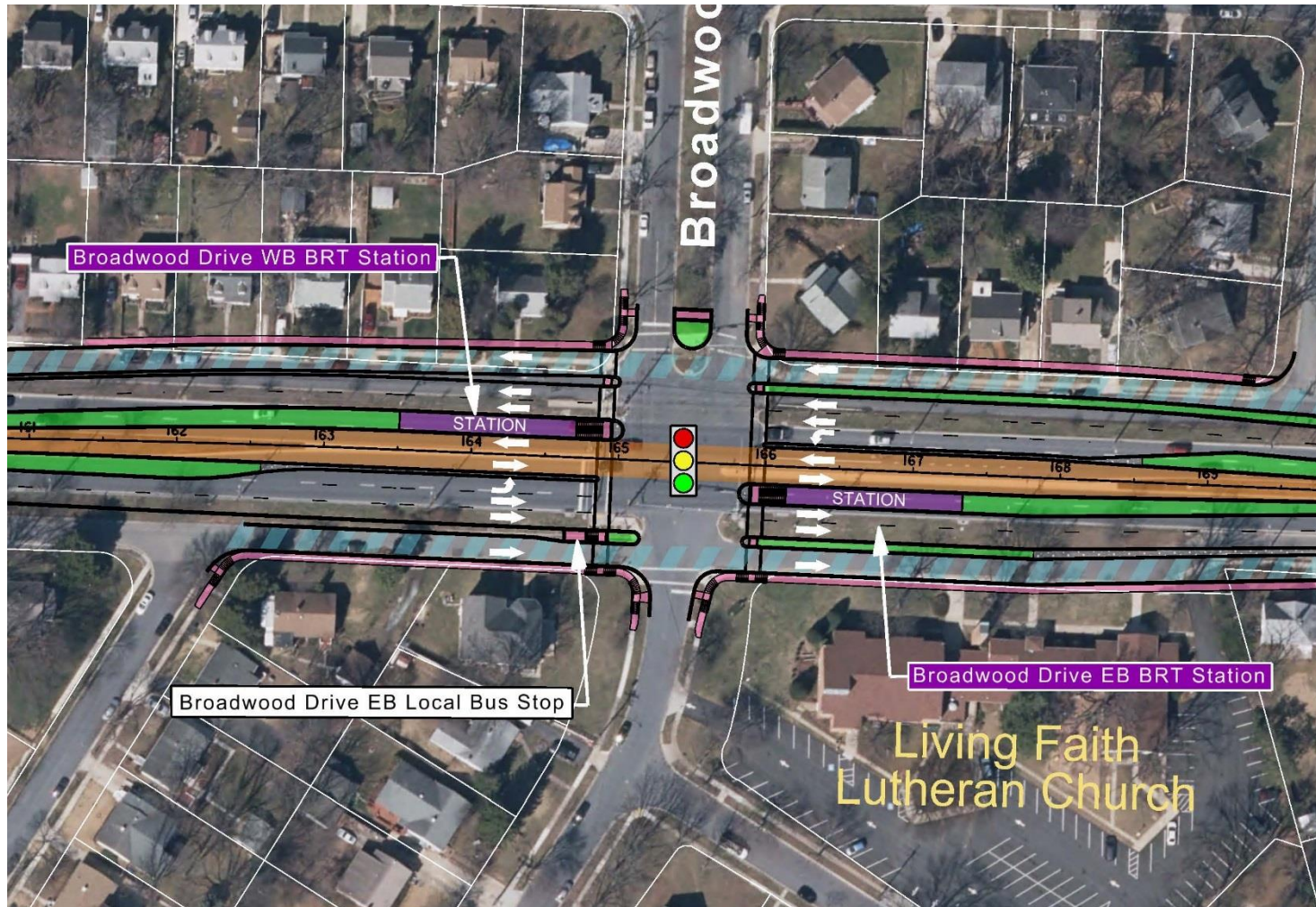
Example #1: Twinbrook Parkway – Far Side



Example #2: Parkland Drive – Same Side



Example #3: Broadwood Drive – Opposite Left Turn Lane



Station Prototypes

- 12 stations/enhanced bus stops in each Alternative
- 5 different prototypes
 - Enhanced Bus Stop – curbside stop with more amenities than a traditional bus stop
 - Side Platform – 120'-long curbside station
 - Reduced Side Platform – 60'-long curbside station
 - Split Side Platform – 120'-long median station with loading areas on one side
 - Center Platform – 120'-long median station with loading areas on both sides

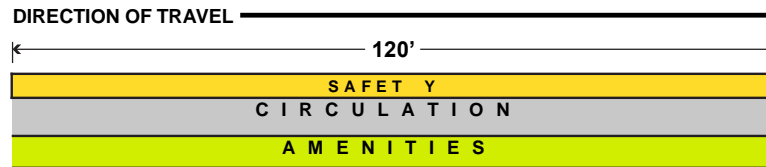
Station Prototypes

Location	Alternative 2	Alternative 3	Alternative 5B
Montgomery College	Enhanced Bus Stop	Side	Side
Rockville Metrorail Station	Enhanced Bus Stop	Side	Side
MD 28 (First Street)	Enhanced Bus Stop	Side	Center
Broadwood Drive	Enhanced Bus Stop	Side	Split Side
Twinbrook Parkway	Enhanced Bus Stop	Side	Split Side
Aspen Hill Road	Enhanced Bus Stop	Side	Split Side
Parkland Drive	Enhanced Bus Stop	Side	Split Side
Randolph Road	Enhanced Bus Stop	Side	Split Side
MD 193 (Connecticut Avenue)	Enhanced Bus Stop	Side	Split Side
Newport Mill Road	Enhanced Bus Stop	Reduced Side	Split Side/Reduced Side
MD 193 (University Boulevard)	Enhanced Bus Stop	Reduced Side	Reduced Side
Wheaton Metrorail Station	Enhanced Bus Stop	Side	Side

Station Components

- Station Elements:
 - Platform
 - Access/ramps
 - Canopy
- Station Amenities:
 - Seating
 - Ticket vending machines
 - Landscaping
 - Trash and recycle receptacles
 - Real-time passenger information
 - Bicycle racks
 - System map
 - Artwork

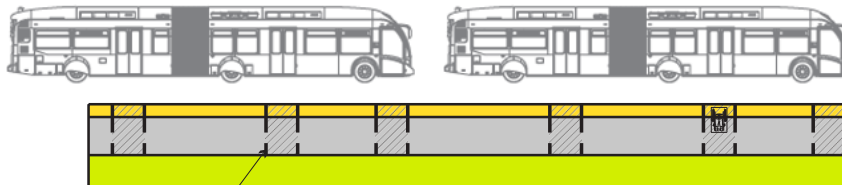
Station Elements - Platform



platform zones



direction of circulation



boarding locations

boarding zone

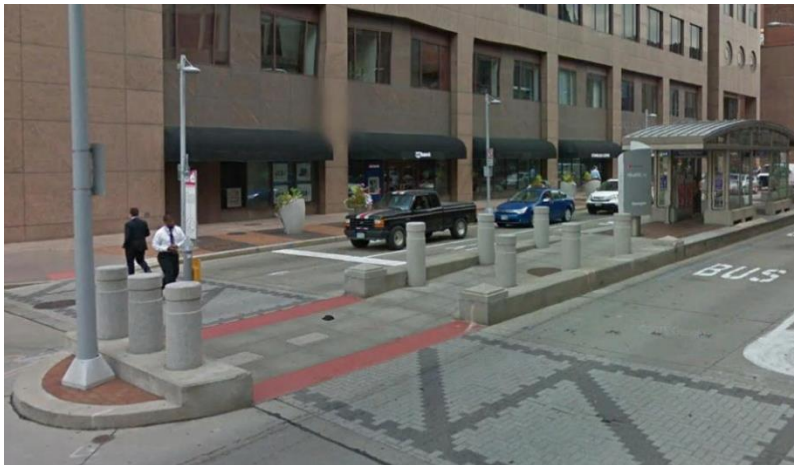
Platform Design Criteria - 120' Side Platform

Station Elements - Platform



Eugene, OR – Center Platform with decorative finish

Station Elements – Access / Ramps



Station Elements – Canopy Coverage



option 1:
split canopy coverage

option 2:
central canopy coverage

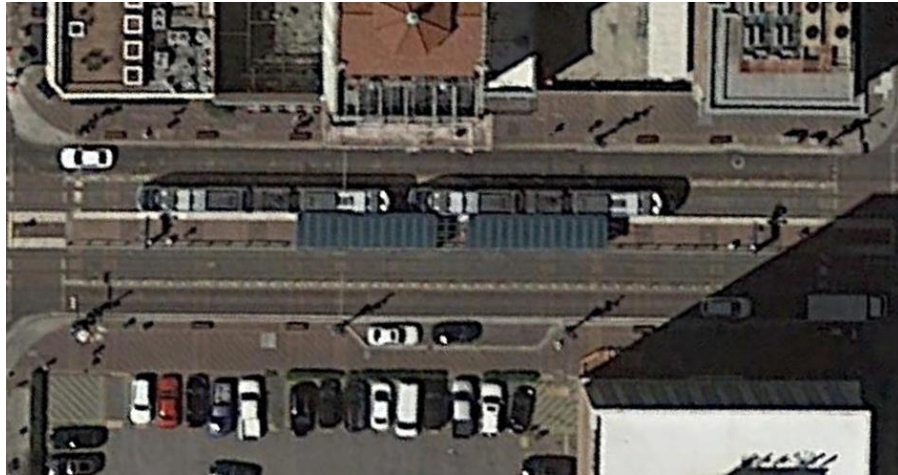
option 3:
2/3 platform canopy coverage

option 4:
full platform canopy coverage

Platform Design Criteria: Canopy Coverage - 120' Side Platform

Station Elements – Canopy Coverage

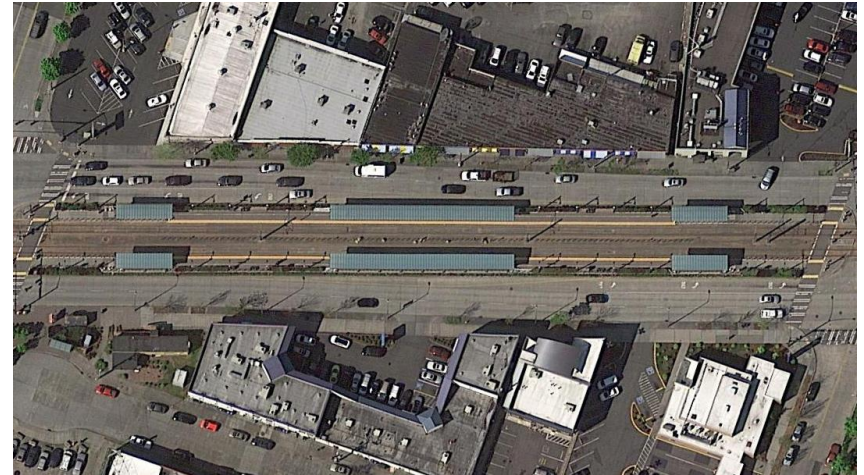
30% Coverage



Center Station

Houston, Texas

50% Coverage



Othello Station

Seattle, Washington

Station Elements – Canopy Coverage

70% Coverage



Arena Station

Charlotte, North Carolina

90% Coverage



Convention Center Station

Portland, Oregon

Station Elements – Canopy Coverage



Charlotte – 70% Canopy



Leon, Mexico – Full Canopy

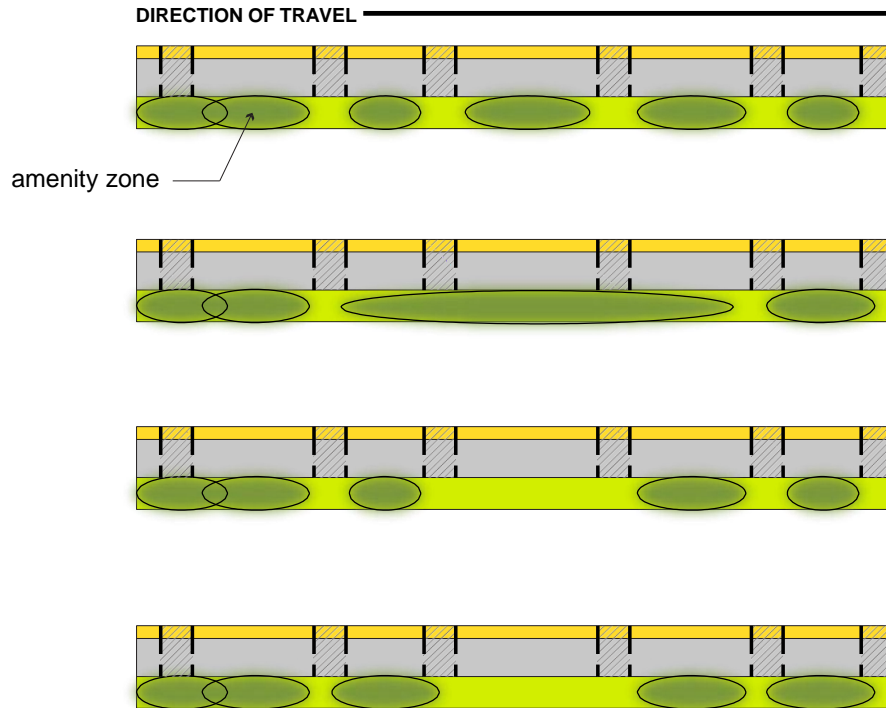


Eugene – 70% Canopy



Charlotte – Split Canopy 50%

Station Elements - Amenities



option 1:
full platform amenities
distributed loading demand

option 2:
full platform amenities
central loading demand

option 3:
split amenities
middle & rear-door based loading demand

option 4:
split amenities
equal loading demand

Platform Design Criteria: Amenities - 120' Side Platform

Station Elements - Amenities



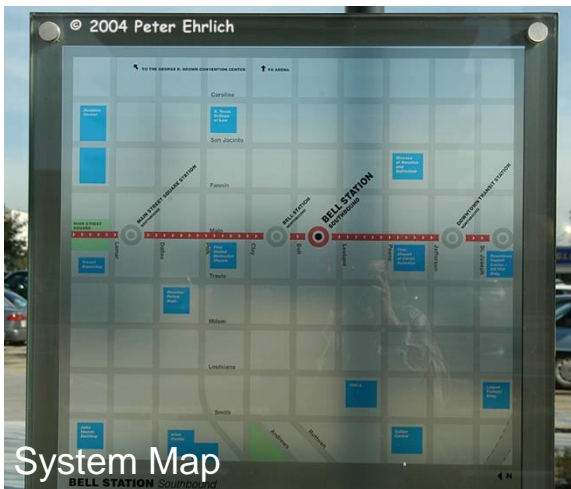
Seating



Security



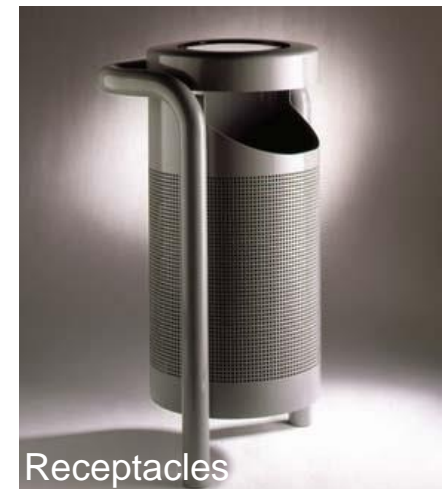
Lighting



System Map



Canopy



Receptacles

Station Elements - Amenities



Ticket Vending



Surface Treatments



Bicycle Parking



Artwork



Landscaping



Sustainability

Enhanced Bus Stop

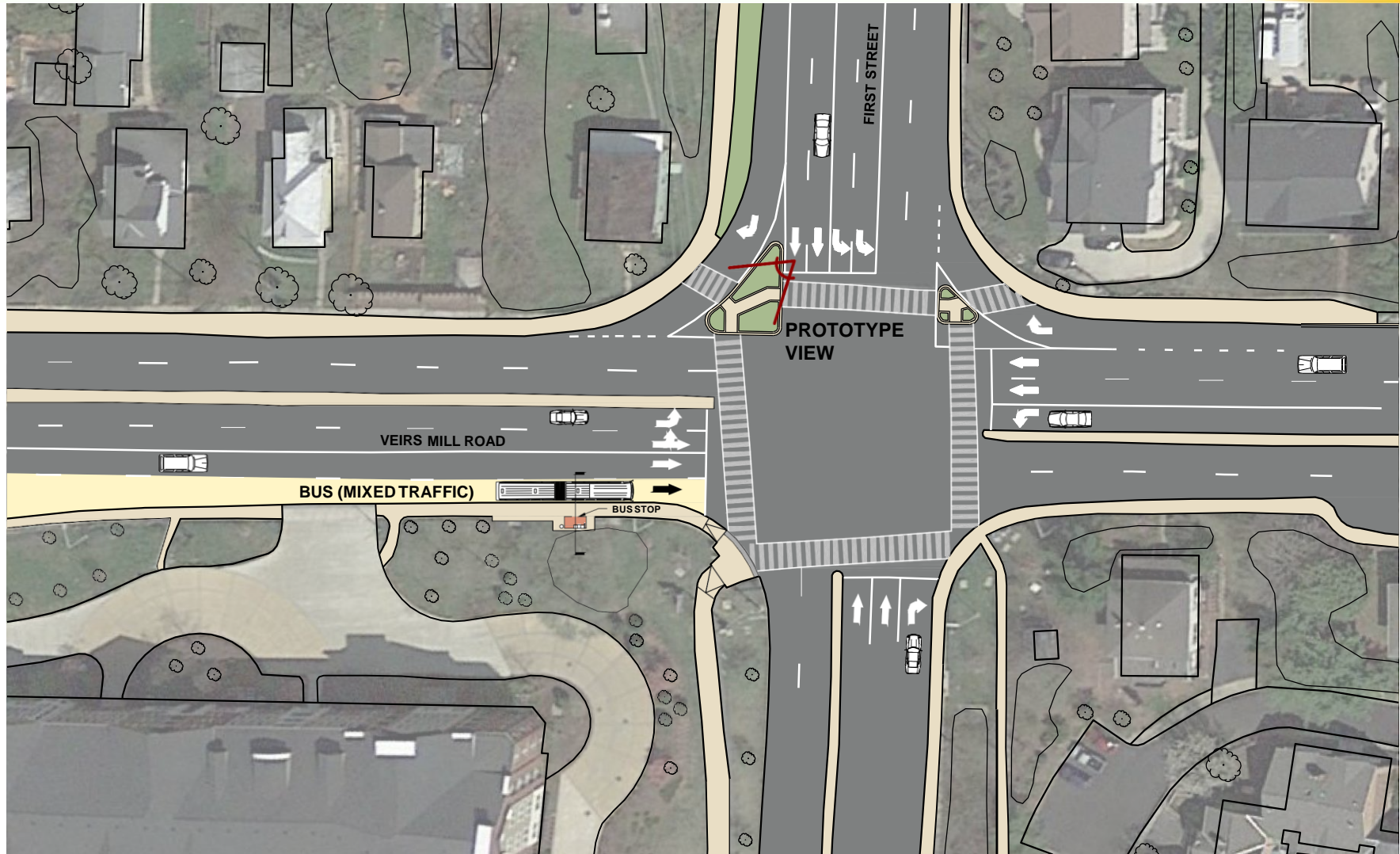
- Limited site improvements
- Loading for single bus only
- Fewer site amenities
 - 6"-8" curb loading
 - Bus shelter with limited seating
 - Potential for real time information display
 - System map and information



San Francisco

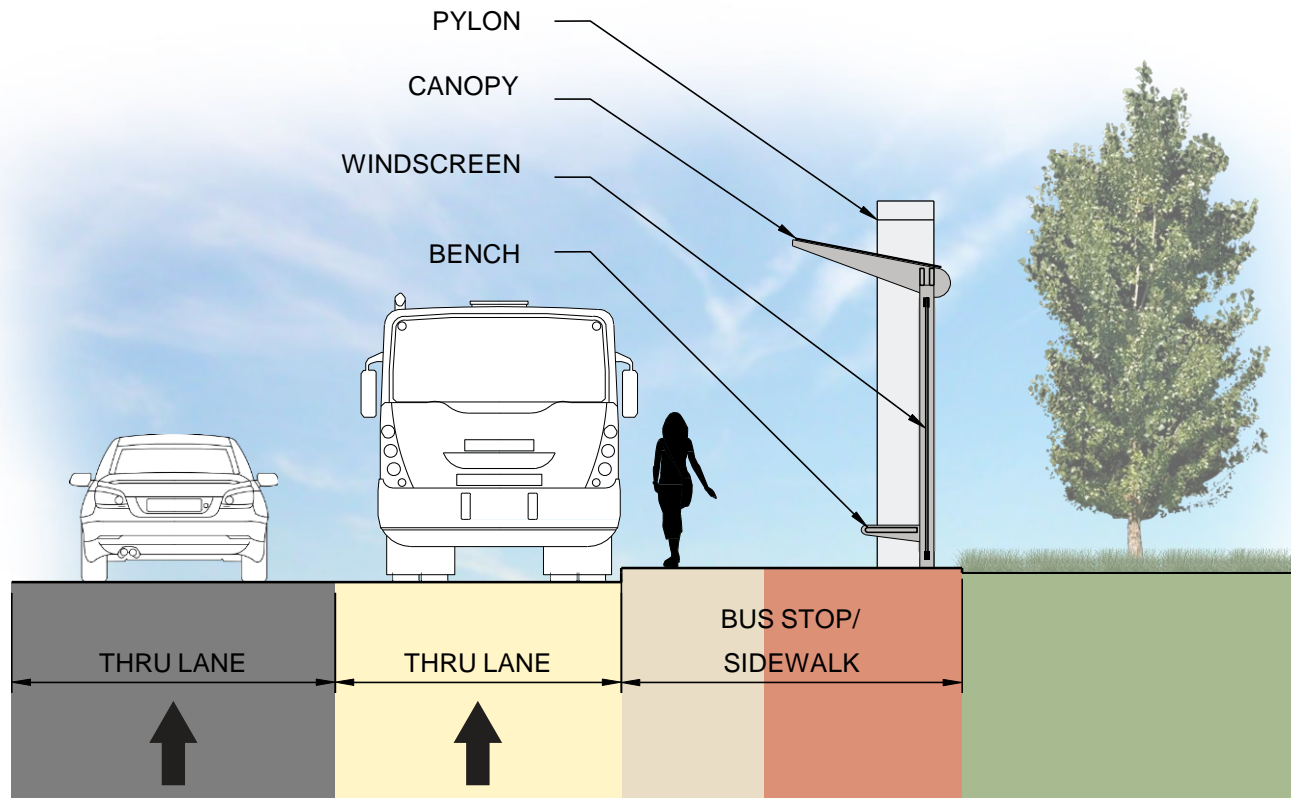


Kansas City



Enhanced Bus Stop Prototype – Site Plan Alternative 2 Only

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Enhanced Bus Stop Prototype – Section
Alternative 2 Only



Note: Design and location of canopies and windscreens are still to be determined

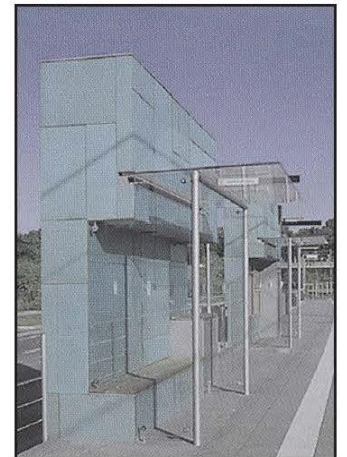
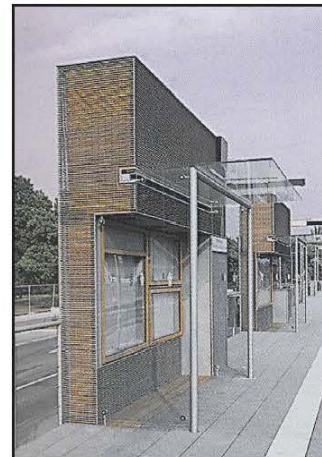
Enhanced Bus Stop Prototype – Rendering Alternative 2 Only

montgomerycountymd.gov/rts

Station Identity



- Signage
- Symbol
- Color
- Form

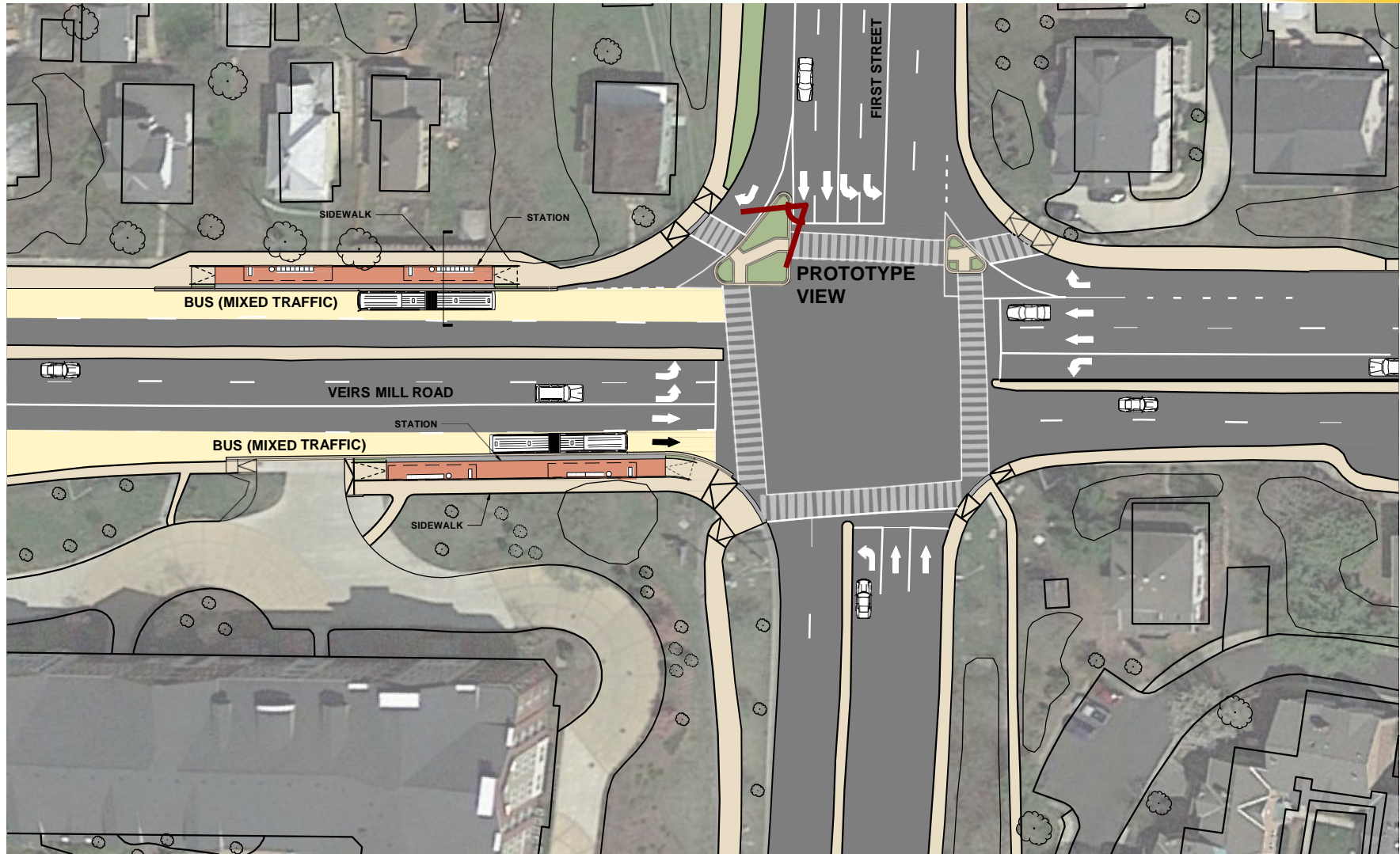


Side Platform Station - Curbside

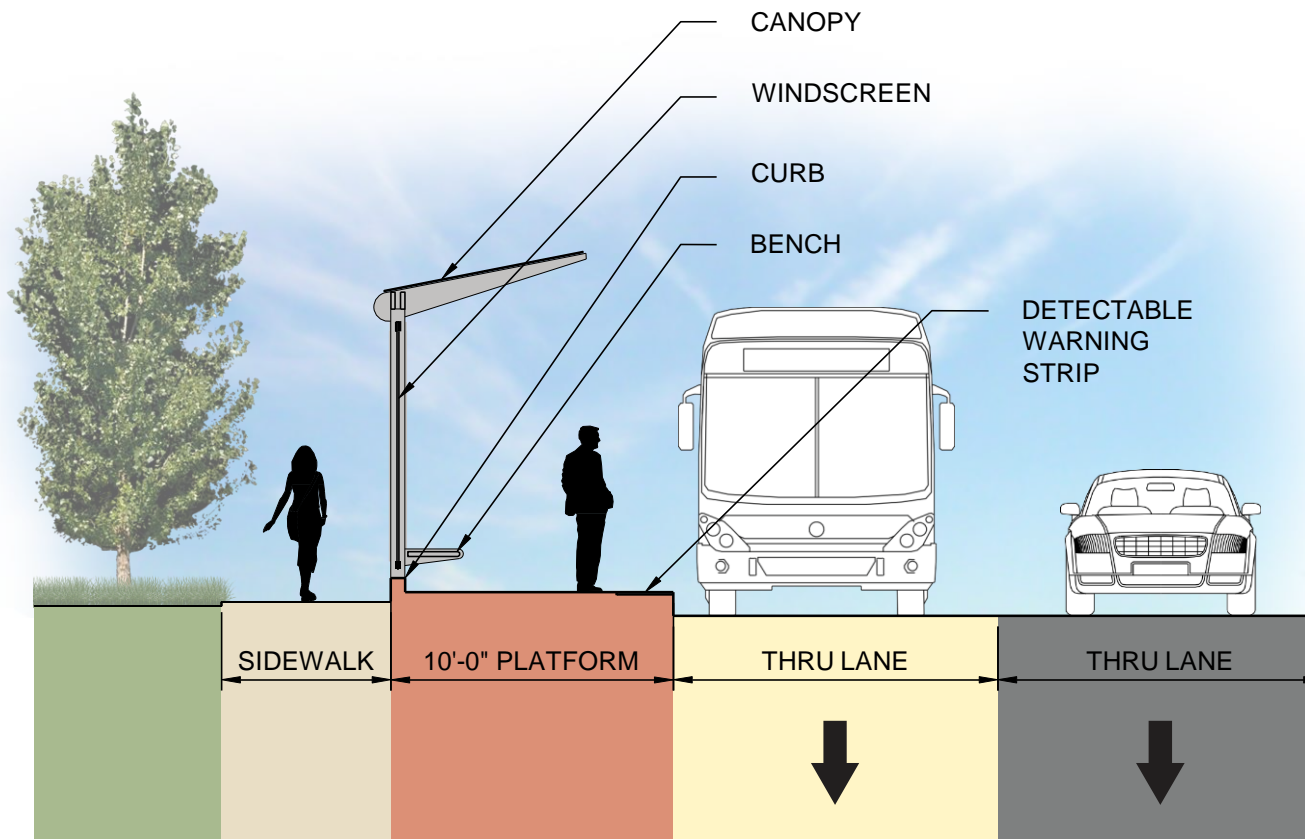
- More significant site improvements
 - Side of the road
 - Abuts existing sidewalks
- Loading for one or two buses
- Full site amenities
 - 6"-8" curb loading or 14"-15" "level" loading
 - Large shelter or canopy
 - Real time information display
 - System map and information
 - Seating options
 - Platform furnishings



Los Angeles



Side Platform Prototype – Site Plan
Alternative 3 or 5B



Side Platform Prototype – Section
Alternative 3 or 5B



Note: Design and location of canopies and windscreens are still to be determined

Side Platform Prototype – Rendering Alternative 3 or 5B

montgomerycountymd.gov/rts

Station Technology



3G
1:20

TIP: Enter an intersection, bus route or bus stop code, or try one of the examples below:

Routes:

Bx1	M15-SBS	Q58
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Stops:

200460	308215	502030
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Intersections:

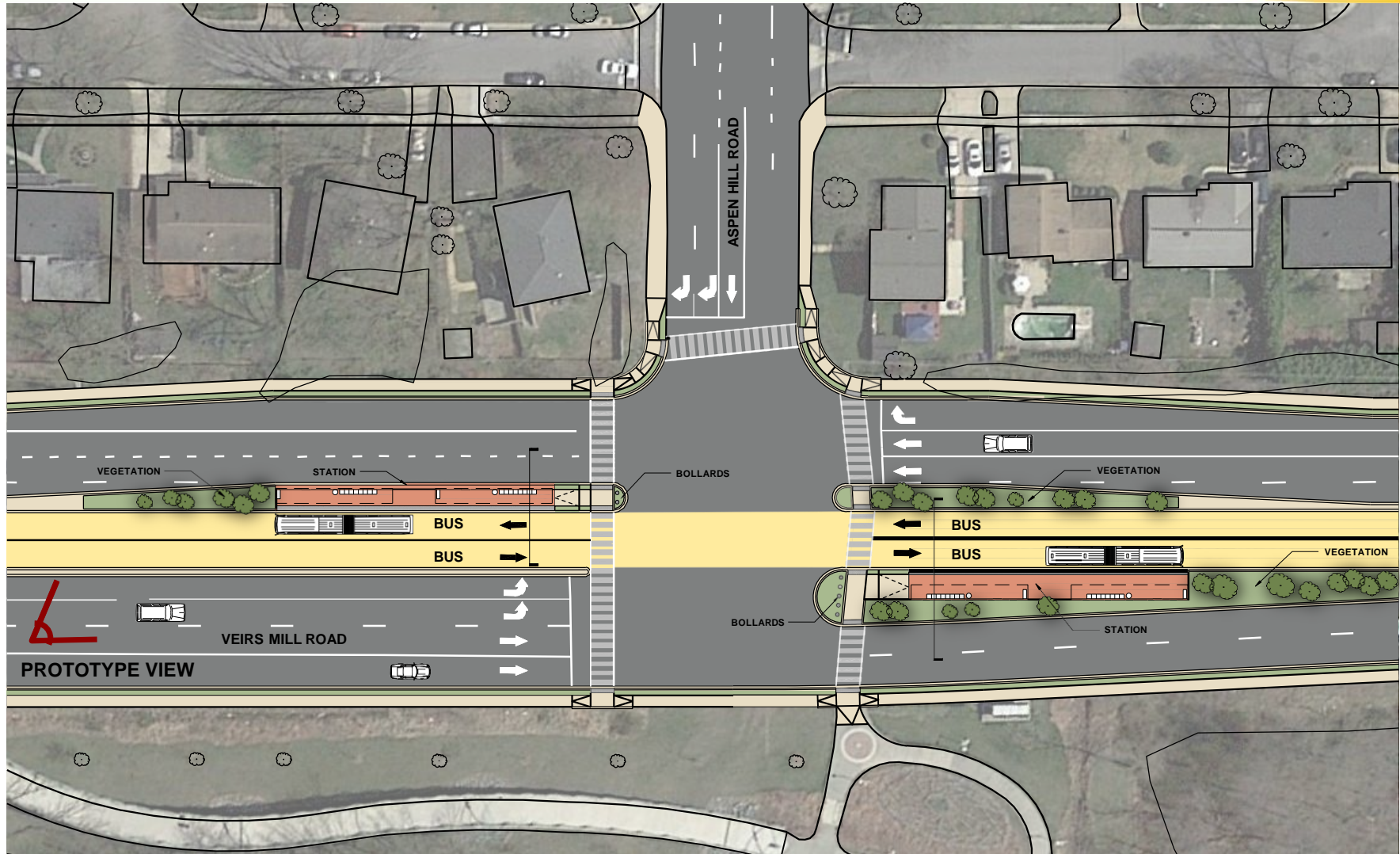
Main Street & Kissena Bl

Split Side Platform Station – Road Center

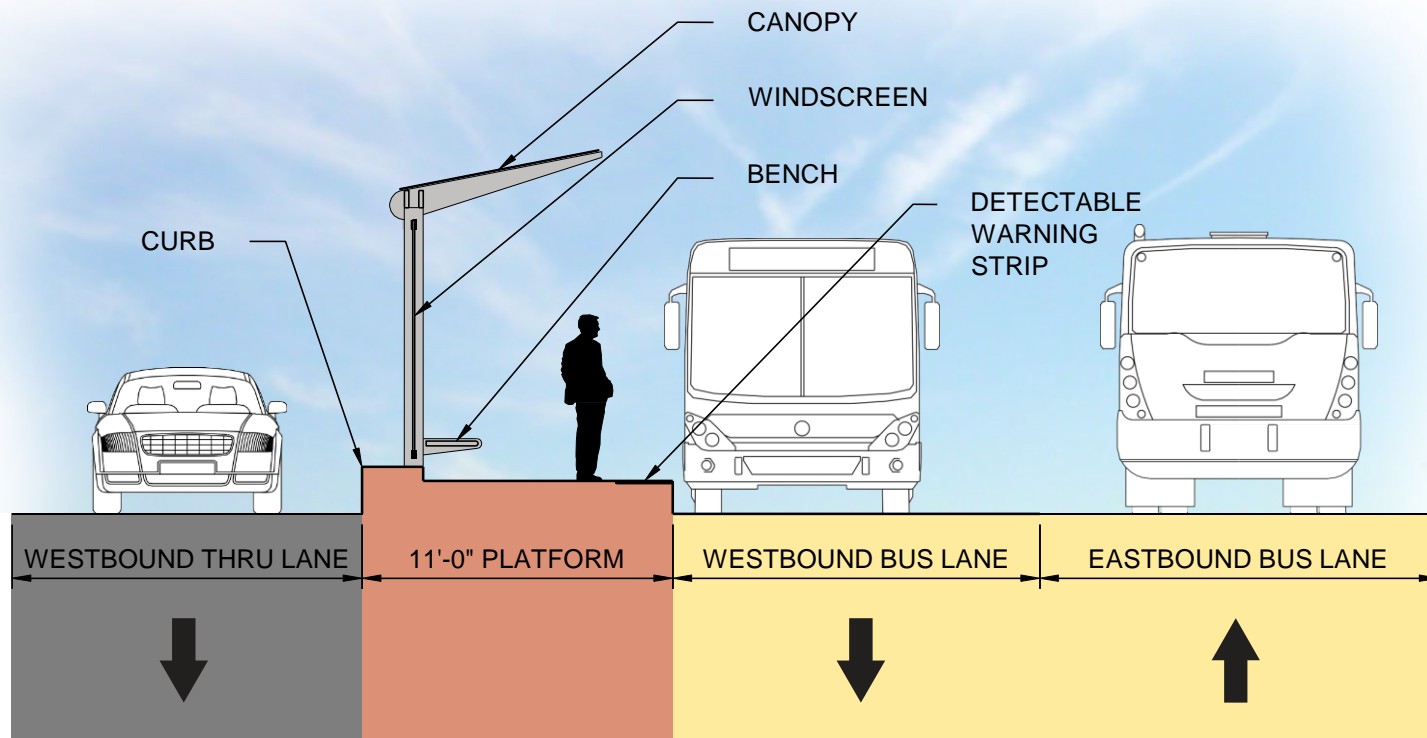
- More significant site improvements
 - Center of road
 - Changes road “cross-section”
- Loading for two buses per platform
- Full site amenities
 - 14”-15” ‘level’ loading
 - Large shelter or canopy
 - Real time information display
 - System map and information
 - Seating options
 - Platform furnishings
 - Landscaping opportunities



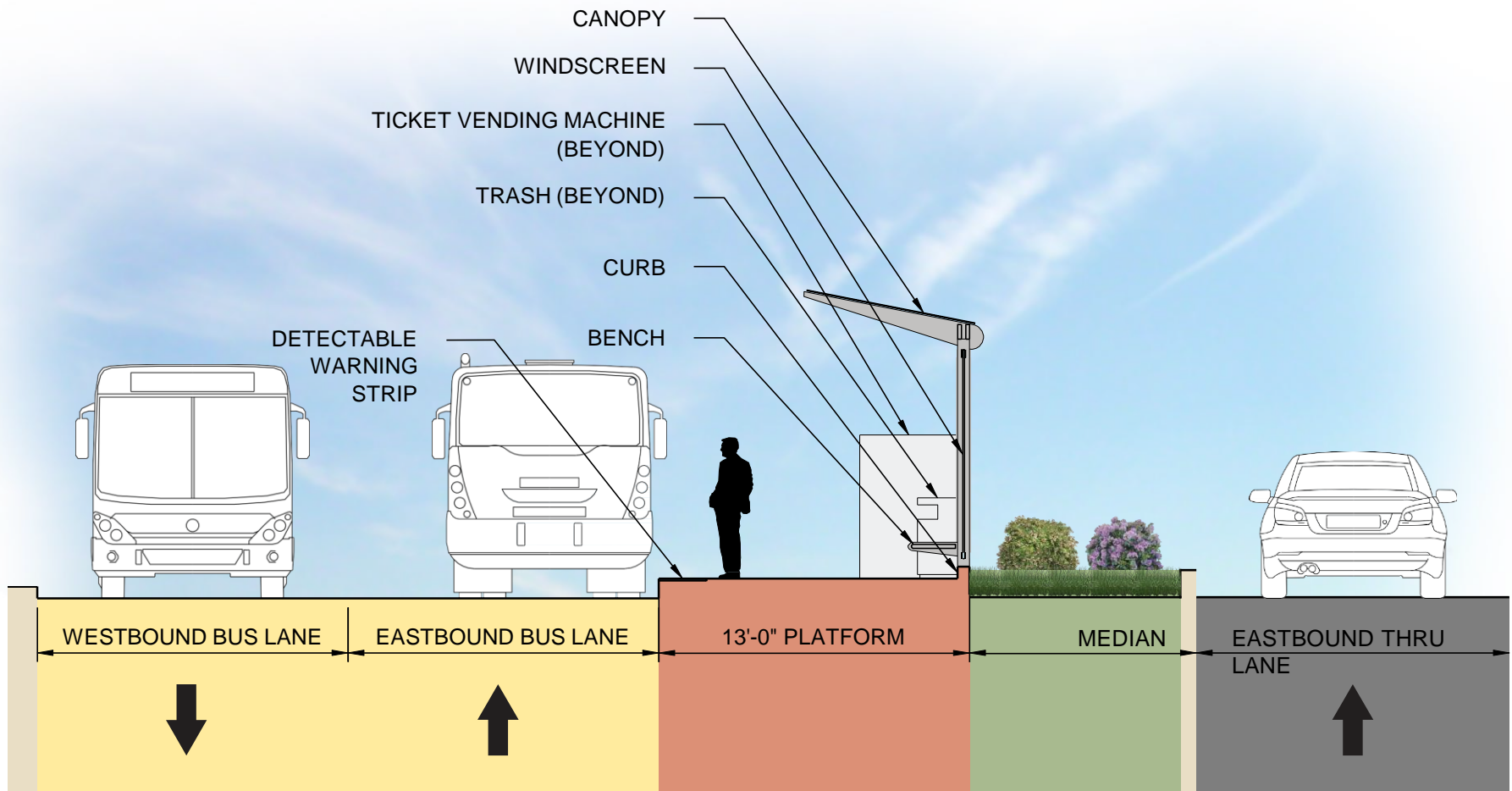
Alexandria, VA



Split Side Platform Prototype - Site Plan
Alternative 5B Only



Split Side Platform Prototype – Section
Alternative 5B Only



Split Side Platform Prototype with Median – Section Alternative 5B Only



Note: Design and location of canopies and windscreens are still to be determined

Split Side Platform Prototype – Rendering Alternative 5B Only

Station Security



Lighting



Security Phone



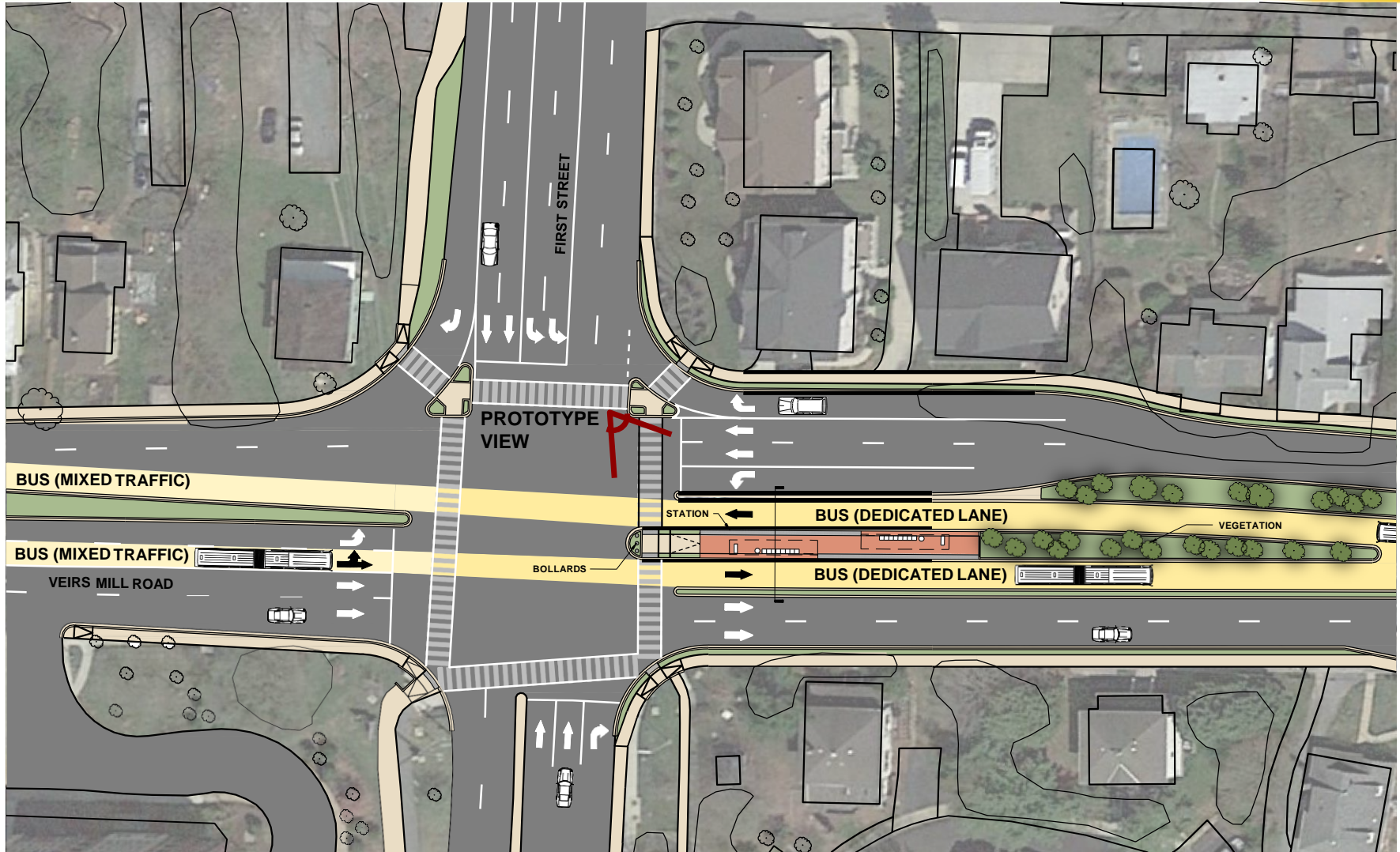
Cameras

Center Platform Station – Road Center

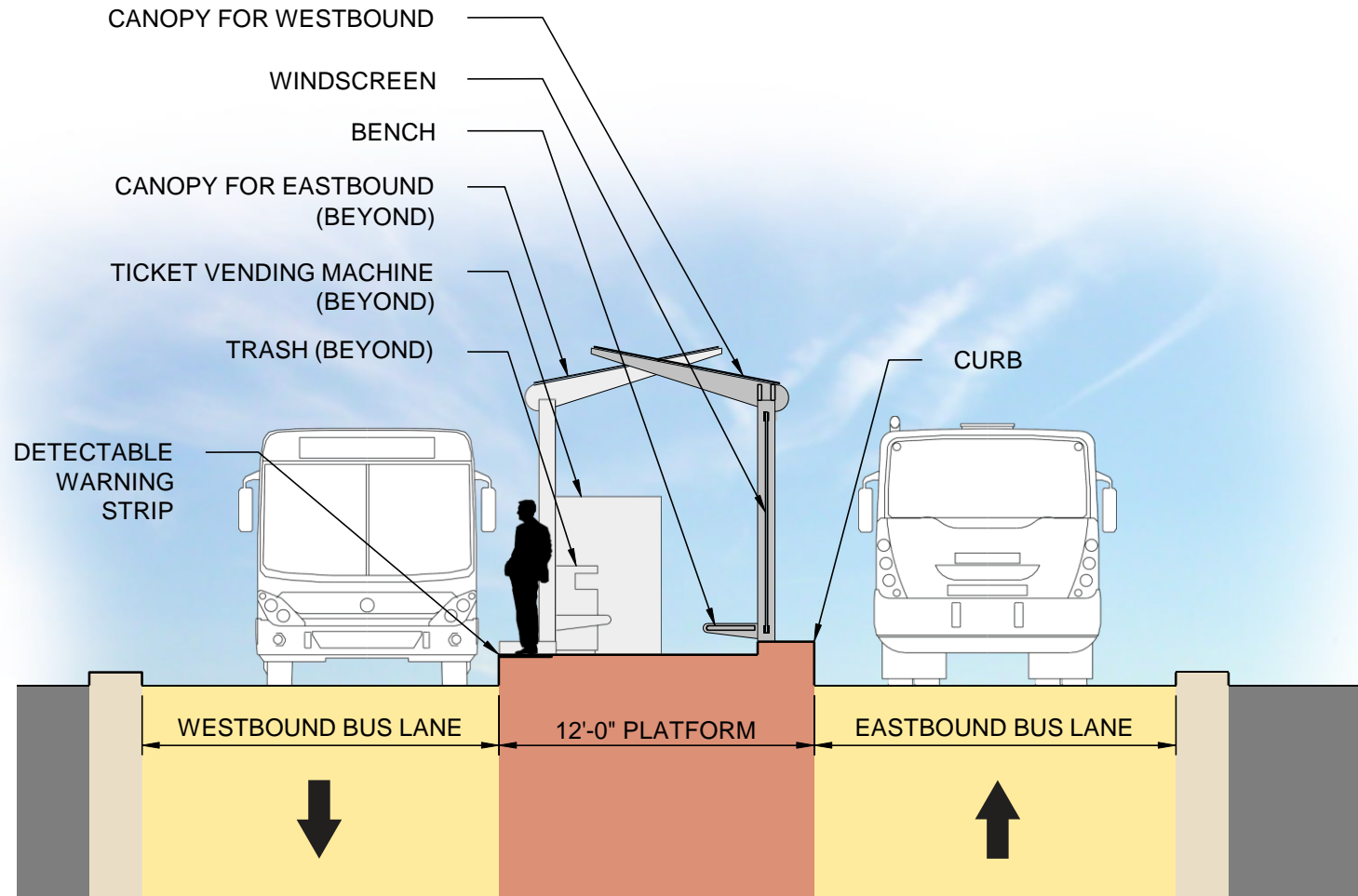
- More significant site improvements
 - Center of road
 - Changes road “cross-section”
- Loading for one bus per side in constrained condition
- Full site amenities
 - 14”-15” ‘level’ loading
 - Large shelter or canopy
 - Real time information display
 - System map and information
 - Seating options
 - Platform furnishings
 - Landscaping opportunities



Eugene, OR



Center Platform Prototype – Site Plan
Alternative 5B Only



Center Platform Prototype – Section
Alternative 5B Only



Note: Design and location of canopies and windscreens are still to be determined

Center Platform Prototype – Rendering Alternative 5B Only

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Station Sustainability



Water



Transit Connections



Alternative Modes



Energy

Conclusion

Meeting #8: TBD

Topic for Meeting #8: Continue review of Alternatives: Traffic, Ridership, Cost Estimate, Comparison Table